

Maternal & Perinatal Outcome in Oligohydramnios at or Beyond 34 Weeks of Gestation in Working Population

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Abstract

Introduction: Oligohydramnios has adverse effect on perinatal outcome and is associated with incidence of increased rate of labor induction, non-reassuring fetal heart pattern, stillbirth, meconium aspiration syndrome (MAS) and neonatal death. .

Criteria for oligohydramnios are Amniotic fluid volume < 500 cc at 32-36 weeks of gestation, Single deepest vertical pocket of < 2 cm, Amniotic fluid index (AFI) < 8cms at 34 weeks of gestation.

Material and Methods: The study was level II study i.e. prospective - observational study comprising of one hundred fifty pregnancies divided into two groups; one group had seventy-five pregnancies with oligohydramnios and the control group with seventy-five pregnancies without oligohydramnios confirmed by ultrasound examination. Maternal and perinatal outcome was evaluated at or beyond 34 weeks of gestation.

Results: Majority of cases were between the age group of 20 to 30 years in both study and control group. Oligohydramnios was commonly found in primigravida - 65% in study group and 48% in control group (p=0.0476). Most common cause of oligohydramnios was idiopathic i.e. 51% followed by pregnancy induced hypertension (PIH) in

21% cases.

It was observed that 45% of cases in study group required induction of labor by cervipime gel (0.5 mg given by intracervical route) as opposed to control group in which 29% of cases required induction (p=0.043).

Non-reactive non stress test (NST) at the time of admission in labor room or at the time of labor was more in the study group (36%) than in control group (15%) [p=0.0427]. It was also observed that meconium stained liquor (thin +thick) was more common in study group than control group i.e. 43% v/s 23% respectively (p=0.0419).

Keywords: Oligohydramnios; Perinatal Morbidity; Amniotic Fluid Index (AFI).

Introduction

The incidence of oligohydramnios varies from 0.5-5% of total pregnancies. It can be acute or chronic depending on the mode of onset. Acute onset oligohydramnios results from rupture of membranes whereas chronic form is due to anatomical abnormalities in urinary tract or as a pathophysiologic response to a chronic intermittent hypoxia of fetus. Criteria for oligohydramnios are Amniotic fluid volume < 500 cc at 32-36 weeks of gestation, Single deepest vertical pocket of < 2 cm, Amniotic fluid index (AFI) < 8cms at 34 weeks of gestation.

Oligohydramnios has adverse effect on perinatal outcome and is associated with incidence of increased rate of labor induction, non-reassuring fetal heart pattern, stillbirth, meconium aspiration syndrome (MAS) and neonatal death.

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Material & Methods

The study was level II study i.e. prospective - observational study comprising of one hundred fifty pregnancies divided into two groups; one group had seventy-five pregnancies with oligohydramnios and the control group with seventy-five pregnancies without oligohydramnios. Maternal and perinatal outcome was evaluated at or beyond 34 weeks of gestation.

An accurate and reproducible method of determining amniotic fluid volume (AFV) is ultrasonographic measurement of amniotic fluid index (AFI), which was measured (4 quadrant) by the technique described by Phelan et al [1].

Inclusion criteria: AFI was calculated by the above technique.

- AFI of 5 cm or less in study group
- AFI >5 cm in the control group
- Single live intrauterine fetus
- Gestation age of thirty-four weeks or above (as determined by USG).

Exclusion Criteria

- Multiple pregnancy
- Premature rupture of the membranes
- Fetus with congenital anomalies.

Complete antenatal history, general and obstetrics examination, complete blood counts and ultrasonographic (AFI) evaluations were done. Women's were then followed till delivery and maternal and perinatal outcomes were recorded.

Results

Majority of cases were between the age group of 20 to 30 years in both study and control group. Oligohydramnios was commonly found in primigravida - 65% in study group and 48% in control

group ($p=0.0476$). Most common cause of oligohydramnios was idiopathic i.e. 51% followed by pregnancy induced hypertension (PIH) in 21% cases.

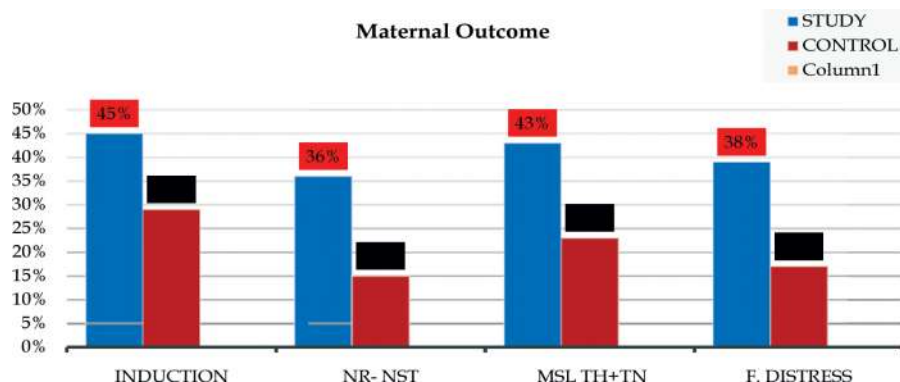
It was observed that 45% of cases in study group required induction of labor by cervipime gel (0.5 mg given by intracervical route) as opposed to control group in which 29% of cases required induction ($p=0.043$). Non-reactive non stress test (NST) at the time of admission in labor room or at the time of labor was more in the study group (36%) than in control group (15%) [$p=0.0427$]. It was also observed that meconium stained liquor (thin +thick) was more common in study group than control group i.e. 43% v/s 23% respectively ($p=0.0419$).

In study group 46% had vaginal delivery and 54% underwent cesarean section of which 83% were primary and 17% were repeat sections; In control group, 61% had vaginal delivery and 39% had to undergo cesarean section of which 65% were primary and 35% were repeat cesarean sections ($p= 0.0493$). In study group, increased emergency sections (41% v/s 21%) in control group. However, elective cesarean sections were higher in control group compared to study group (13% v/s 19%). High operative morbidity (Cesarean/Forceps/Vacuum delivery) was observed in study group than in control group i.e. 74% v/s 43% respectively ($p= 0.0219$).

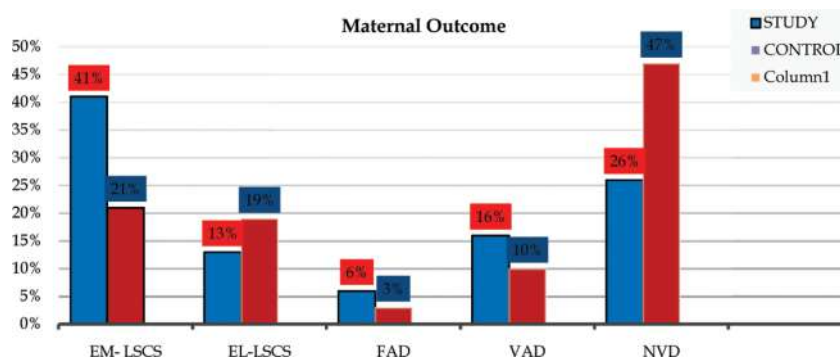
Fetal distress was the most common indication for cesarean section. 74% of study-group newborns and 39% of control group newborns had APGAR (at 5 minutes) less than 7 ($p = 0.001$).

Low birth weight (<2.5 kg) babies were more common in study group than in control group (50% v/s 22%) [$p = 0.001$]. NICU stays were increased in the study group compared to control group, which was due to increased neonatal morbidity in study group. Respiratory distress, preterm delivery, meconium aspiration syndrome, still birth, neonatal death were more common in study group than the control group. Total hospital stay was high in the study group, which was due to more operative interference and neonatal morbidity in study group.

Graph 1



Graph 2



Complication	Study	Control
Respiratory distress syndrome	12 (18%)	7(9%)
Meconium aspiration syndrome	3(5%)	1(1%)
Preterm	8(11%)	3(4%)
IUGR	18(24%)	5(7%)
Stillbirth	3(4%)	1(1%)
Neonatal death	3(5%)	1 (1%)

Discussion

Manning [2] established the relationship between the detection of decreased AFI by USG and its adverse perinatal outcome. Garmel [3] supported that 67% of women’s with AFI <5 cms were primipara and similar observations were made by K. Jagatia [4] i.e. fifty-two percent primiparas had oligohydramnios, in present study 65% primi had oligohydramnios (p = 0.0476). In our study, most common cause of oligohydramnios is idiopathic (51%) followed by PIH (21%) and anaemia (15%). K Jagatia [4] observed that the most common cause of oligohydramnios is idiopathic (52%) and second common cause is PIH (25%), which is in consistence with our study. Casey [5] and co-workers showed increase in labour induction (42% vs 18%) in oligohydramnios group and Rainford [6] depicted that patients with a normal >5 amniotic fluid index had a significantly lower labor induction rate [96 (51%) v/s 42 (28%)]; in present study induction of labor with cerviprime gel is high in the study group than control group (45% v/s 29% respectively). Feto-placental insufficiency is high in the study group, approximately 7% women’s with AFI <5 presented with fetoplacental insufficiency in the study by K Jagatia [4]. In our study, non-reactive non stress test at the time of admission in labour room/ at labour is more in the study group (36%) than the control group (15%). C Jandial [7] showed high abnormal (non-reassuring) fetal heart rate in women’s with oligohydramnios. Voxman [8] showed that with AFI <5cms were associated with significantly increased rate of abnormal (non-reassuring) fetal heart rate in NST/CTG. In our study group 46% women delivered vaginally and

54% women delivered by caesarean sections; of these 41% delivered by emergency caesarean and 13% delivered by elective caesarean section. Study by C Jandial [7] showed 44% vaginal delivery and 56% delivered by caesarean section of which 42% by emergency and 14% by elective sections. Total operative morbidity (vacuum, forceps assisted delivery and LSCS) is 71% in study group and fetal distress was the most important factor for operative interference; Youseef [9] et al observed that operative intervention was required in fetal distress. Moore [10] et al showed that fetal distress requiring operative intervention was three times higher in oligohydramnios group when compared to control. We found that meconium stained liquor (thin +thick) is more common in study group than control group (43% v/s 23% respectively). Jandial [7] et al. showed that meconium stained liquor was and meconium aspiration syndrome was more common in oligohydramniotic group. Rainford [6] et al observed that, with a low amniotic fluid index there is higher rate of meconium-stained liquor. Golan [11] and coworker - noted a low apgar score of less than 5 at five minutes in 4.6% babies and in present study this incidence is 7% percent. Jandial [7] showed that having low birth weight(< 2.5 kg) were 29 (58%) and present study showed birth weight <2.5 kg (50% vs 22%) (p-0.001). Garmel [3] et al - showed that high NICU admission in study group AFI <8 (18.5%). Rainford [4] et al showed with a low amniotic fluid index there is higher rate of neonatal care unit (7% vs 2%) and In present study, total NICU morbidity in >15 days is three times higher in study group than control group. (15% vs 5%).

Oligohydramnios is a known hallmark for adverse

perinatal outcome and impending severe perinatal compromise. Neonatal morbidity is high in our study

in study group population that is consistent with the findings by Jandial et al.

Sr. No.	Neonatal Morbidities	Charu J. et al	Present Study
1.	Low Birth weight (< 2.5 kg)	29 (58%)	38 (50%)
2.	Respiratory distress	3 (6%)	12 (18%)
3.	Meconium aspiration	2 (4%)	3 (5%)
4.	NICU admissions >15 days	8 (16%)	7 (9%)
5.	Stillbirths (macerated)	2 (4%)	3 (5%)
6.	Neonatal deaths	3 (6%)	3 (5%)

Conclusion

Oligohydramnios is associated with adverse maternal and perinatal outcome. Maternal dehydration in working population can be a cause of idiopathic oligohydramnios. Oligohydramniotic patients need close monitoring of AFI and biophysical profile with doppler and NST monitoring for early detection of fetal distress. Reactive NST is associated with good APGAR, decreased NICU admission and neonatal death.

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